



Interconnection Technical Workshop

Discussion of Generation Interconnection Standards

MPSC Technical Workshop

November 28, 2007

Helena, Montana



Workshop Purpose

- **Explain NWE's present Interconnection policy procedures**
- **Discuss the feasibility of adopting IEEE 1547 as the Interconnection Standard for Montana**

NWE's Interconnection Policy

- **Every Distribution Interconnection request is processed through one of two paths:**
 - **Net Metering requests**
 - Facilitated by NWE's John Campbell
 - **All other Interconnection requests**
 - Facilitated through NWE's Transmission Planning Dept.

NWE's Interconnection Requirements

- **Distribution Interconnection requests are typically divided into the following categories:**
 - **Net Metering projects**
 - 50kW and less
 - Offsets customer's energy consumption
 - Well established process
 - Information and application are readily available from NWE's website
 - Presently 350 installations on NWE's system
 - **Qualifying Facilities projects**
 - Typically 3MW and less
 - Energy is sold to NWE for Default Supply Resources
 - Process is similar to Transmission SGIA

NWE's Interconnection Requirements

- **Transmission Interconnection requests are typically divided into the following categories:**
 - **Small Generator Interconnection Agreement**
 - Less than 20MW
 - Strict FERC Standards 2006-A are established
 - Facilitated through Transmission Planning Department
 - Well established application & study process
 - **Large Generator Interconnection Agreement**
 - 20MW and greater
 - Strict FERC Standards 2003-C are established
 - Facilitated through Transmission Planning Department
 - Well established application & study process

Typical Interconnection Requirements

- **Other than Net Metering projects, all Interconnection projects are studied and reviewed for items like:**
 - **Available system capacity**
 - **Effects of the generator on system**
 - **Load flows**
 - **Voltage**
 - **Fault duty**
 - **Stability**
 - **Flicker**
 - **Harmonics**
 - **Safety compliance**
 - **Operational jeopardy**
 - **Protective device coordination**
 - **Grounding issues**
 - **Losses**

Individual Studies

- **Each Interconnection Request requires an individual and unique study to ensure system compliance and compatibility**
- **No two Interconnection Requests are the same**
- **Due to wide variations in system configurations, there cannot be a common “cookie cutter” approach to Interconnection Requests**

IEEE 1547

- **IEEE 1547 is a Standard for Interconnecting Distributed Resources with Electric Power Systems**
- **IEEE 1547 is primarily intended for Interconnection of 10MW or smaller generators on a radial fed distribution system**

IEEE 1547 Limitations

- **IEEE 1547 does not address specific technical requirements like:**
 - **System capacity concerns**
 - **Fault duty issues**
 - **Safety compliance**
 - **Work rule effects**
 - **Operational jeopardy**
 - **Protective device coordination**
 - **System losses**
 - **Metering requirements**

Using IEEE 1547 at NWE

- **NWE already considers and requires the basic requirements established in IEEE 1547**
- **IEEE 1547 is a minimum set of requirements to consider for Interconnection Requests**
- **IEEE 1547 cannot be used as the sole generic guideline for Interconnection Requests**
- **Due to system specific situations, NWE must have the right to add more stringent or modified requirements than IEEE 1547 to ensure that our operational system conditions are not jeopardized**

Recommendations

- **Accept IEEE 1547 as a minimum set of requirements for Interconnection Requests**
- **NWE must have the right to add more stringent or modified requirements than IEEE 1547**
- **Continue the practice of studying and reviewing each Interconnection Request to ensure system compliance and compatibility**
- **Continue to report on Interconnection Requests to the MPSC**

Questions
